

Proposed Plan

Penta Wood Products Superfund Site

Town of Daniels, Wisconsin

July 1998

This Fact Sheet Explains:

- site background
- the alternatives considered to address site contamination
- U.S. EPA's proposed cleanup plan
- how to learn more about the site

Public Meeting

U.S. EPA will hold a public meeting to describe the results of the on-site investigations and explain the proposed cleanup plan. Oral and written comments will be accepted at the meeting.

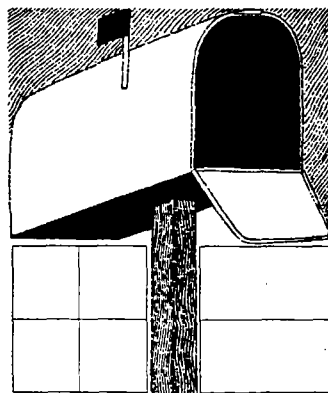
Date: July 15, 1998

Time: 7 p.m.

*Place: Burnett County
Government Center
Room 165
Hwy 35/70 intersection
Siren, WI*

Public Comment Period

U.S. EPA will accept written comments on the proposed plan during a 30-day public comment period from July 7 to August 8. A pre-addressed comment form is included in this proposed plan.



Introduction

This Proposed Plan¹ identifies a final cleanup recommendation and summarizes other alternatives that the United States Environmental Protection Agency (U.S. EPA) evaluated for cleaning up contaminated soil, sediment, and ground water at the Penta Wood Products Superfund site (the site) in the Town of Daniels, Burnett County, Wisconsin (see Figure 1 on page 2). U.S. EPA recommends Alternative 3 — soil cover, bioventing, and ground-water collection and treatment (see page 4 for details).

The site's Remedial Investigation (RI) and Feasibility Study (FS), and other documents used to develop the proposed plan are available for review at the information repositories and administrative record (see back page). Public input on the alternatives and the information that supports these alternatives is an important part of the cleanup process. The public is encouraged to review and comment on the alternatives presented in this Proposed Plan (see sidebar).

The objectives of the RI and FS are to determine the extent of contamination at the site and to evaluate alternatives to address threats or potential threats posed by the site.

Site Background

The Penta Wood Products site is an 82-acre inactive wood treating facility located on Daniels 70 (formerly State Route 70) in Burnett County, Wisconsin. It is located in the Town of Daniels, approximately 2 miles west of Siren. The property is located in a rural agricultural and residential setting and is bordered on the east, west, and north by forest. With the exception of a small portion of the site, Daniels 70 forms the southern site boundary. There are two residences south of Daniels 70 within 200 feet of the site. Approximately 8 acres of the

site are located south of Daniels 70 and bordered on the east by a farm, on the south by agricultural land, and on the west by a residence and a Wisconsin Department of Natural Resources (WDNR) fire tower.

The site consisted of a main treatment building, an oil/water separator building, a gully where wastewater was discharged, a waste-water lagoon, a wood chip pile, and several other buildings, including sawmills, garages, and storage sheds. Portions of the treatment building and the oil/water separator building were demolished during U.S. EPA's "removal action," which is discussed later in this fact sheet. The lagoon, once a holding pond for wastewater, is now a dry basin. A wetland is located off site about 400 feet north of the lagoon (see Figure 2 on page 3).

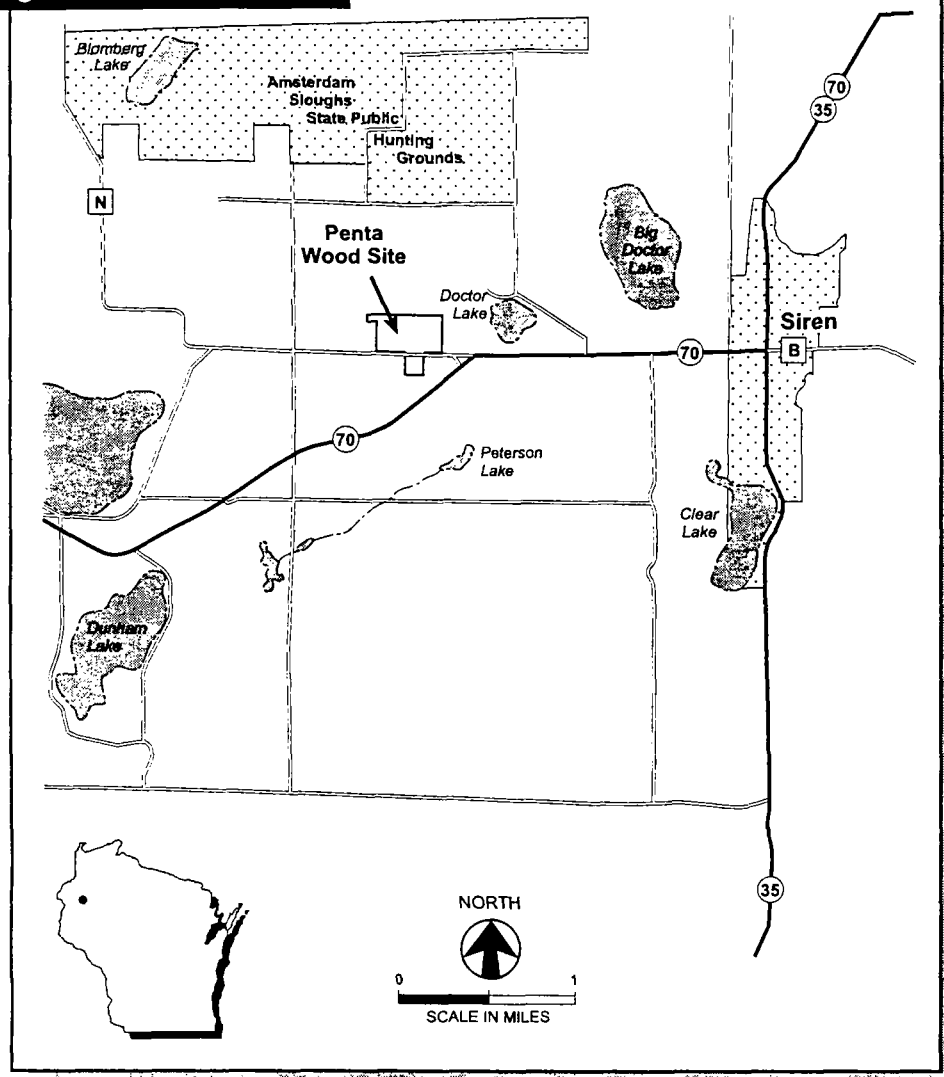
Doctor Lake and an unnamed lake are located 2,000 feet east and northeast of the site, respectively. About 2,137 acres of lakes, 94 acres of bogs, and 7,500 acres of wetlands are within a 4-mile radius of the site. The Amsterdam Slough Public Hunting Grounds is located 1 mile north of the site.

Penta Wood Products operated for 39 years, from 1953 to 1992. Raw timber was cut into posts and telephone poles and treated in process tanks in closed buildings with a pentachlorophenol (PCP) solution in a No. 2 fuel oil, or with a water-borne salt treatment called Chemonite consisting of ammonia, copper II oxide, zinc, and arsenate (ACZA).

During its operation, Penta Wood Products discharged PCP/oil-contaminated

¹ Section 117(a) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) requires publication of a notice and a Proposed Plan for the site remediation. The Proposed Plan must also be made available to the public for comment. This Proposed Plan fact sheet is a summary of information for the Penta Wood Products site. Please consult the feasibility study for more detailed information. See back page.

Figure 1. Location Map



wastewater from an oil/water separator tank down a gully into the lagoon on the northeast corner of the property. PCP/oil- and metals-contaminated wastewater were also discharged onto a wood chip pile in the northwest portion of the property. WDNR investigators noted several large spills, stained soil and poor operating practices during site inspections in the 1970s. The 8-acre portion of the site located south of Daniels 70 was used to transfer a PCP/oil mixture to buyers. In 1988, the WDNR closed an on-site well used for drinking water when high concentrations of PCP were found. In 1989, the Wisconsin Department of Transportation detected high levels of PCP in surface soil samples collected from highway right-of-way on the south side of Daniels 70. In May 1992, Penta Wood Products closed. Between 1993 and 1996, U.S. EPA conducted on-site investigations. In 1996, U.S. EPA placed the site on its National Priorities List, a

list of the nation's most serious uncontrolled or abandoned hazardous waste sites.

Site Contamination

In 1993, the WDNR conducted a site inspection which detected PCP, copper, zinc and arsenic in sediment from the off-site wetland located north of the lagoon. Four semi-volatile organic compounds (SVOCs), were detected in surface soil samples collected by the WDNR, including PCP. SVOCs are compounds of primarily carbon, oxygen, and hydrogen characterized by their tendency to evaporate slower than volatile organic compounds (VOCs), which evaporate quickly (PCP is an example of an SVOC and gasoline is an example of a VOC). Five residential wells, including the three residences within 200 feet of the site, were also sampled by the WDNR for contaminants, however, none were found.

U.S. EPA conducted a site assessment in April 1993. Sixteen soil samples and one sludge sample from the oil/water separator tank were collected and analyzed for arsenic, copper, dioxin, zinc and SVOCs. The SVOC list included 66 chemical compounds including polyaromatic hydrocarbons (PAHs). PAHs are chemical compounds that are commonly found in petroleum fuels, coal products, and tar. High levels of arsenic, PCP and several PAHs were found. Surface soil and ash from a boiler where PCP sludge was burned were sampled and found to contain small amounts of dioxin at levels below the amount that would require cleanup. Spills and poor waste handling practices resulted in soil contamination to a depth of over 100 feet from an area extending from the oil/water separator building to the lagoon. The wastewater, which contained small amounts of the PCP/oil mixture, was discharged from the oil/water separator tank down a gully and into the lagoon. The PCP/oil mixture infiltrated into the sandy soil and traveled down 100 feet to the water table. Several on-site fires caused the release of PCP/oil to the ground water.

Ground-water sampling at the site found high levels of PCP, chloride, and total petroleum hydrocarbons (TPH). TPH is a measure of crude oil or petroleum products in soil or ground water. The source of the PCP and TPH in the ground water is a PCP/oil mixture floating on top of the water table. The PCP spreads further by slowly dissolving in the ground water and moving as a PCP ground-water plume (or underground area of contamination). The PCP/oil mixture floating on the water table moves up and down with the water level as it fluctuates. As the PCP/oil mixture moves up and down, it leaves a residue on the soil.

Removal Action

Between April 1994 and June 1996, U.S. EPA conducted a "removal action." About 28 storage tanks containing liquid and sludge were emptied, and 43,000 gallons of PCP/oil mixture and sludge were disposed of off site. The ACZA treatment building was demolished, and about 1,600 cubic yards of PCP- and arsenic-contaminated soil was excavated and disposed of off site. Another 4,000 cubic yards of ACZA-contaminated soil was excavated and treated on site by mixing it with concrete used to form a 3½-acre concrete pad. The pad was

intended to be used for bioremediation (a treatment system using microorganisms to break down contaminants) of PCP-contaminated soil.

Remedial Investigation (RI) Results

In October 1997, U.S. EPA funding was re-established to continue a long-term study (RI) that began in 1994. The RI included ground-water and residential well sampling, surface-water and sediment sampling from the wetland located north of the lagoon, surface and subsurface soil sampling, and an ecological investigation. In January and February 1998, five monitoring wells were installed to identify the limits of the contaminated ground water.

The RI and previous investigations concluded that the contamination at Penta Wood Products primarily consists of:

- PCP and metals contamination in soil, and surface water and sediment of the wetland;
- PCP/oil mixture floating on top of the ground-water table; and
- PCP in ground water.

The main source of soil and ground-water contamination is the area be-

neath the oil/water separator building, the gully, and the lagoon.

The RI concluded that there is little to no combined PCP/arsenic-contaminated soil left on site following the removal action. Arsenic within the concrete pad is not leaching from the concrete. The contaminants are mostly on site, however, the RI found that PCP/oil-saturated soil and wood debris is moving from the dry lagoon into an adjacent wetland. The northern wall of the lagoon, which was formed from the contaminated soil and wood debris, is collapsing and allowing off-site movement of the contaminants during heavy rainfall. In early 1998, more control measures were done under an "emergency action" to reduce this off-site movement.

Off-site surface soil samples adjacent to the wood scrap pile in the north-west portion of the property also revealed high levels of arsenic, however, no PCP was found. The RI showed that the edges of the area of ground-water contamination have been declining due to natural attenuation (physical, chemical, or biological processes that occur naturally without human influence to reduce contaminants), and that contaminated ground water is not

flowing into the wetland north of the site. Finally, the residential well sampling conducted as part of the RI did not reveal a drinking water contamination problem. The FS, which evaluated possible cleanup options, was based on the RI results.

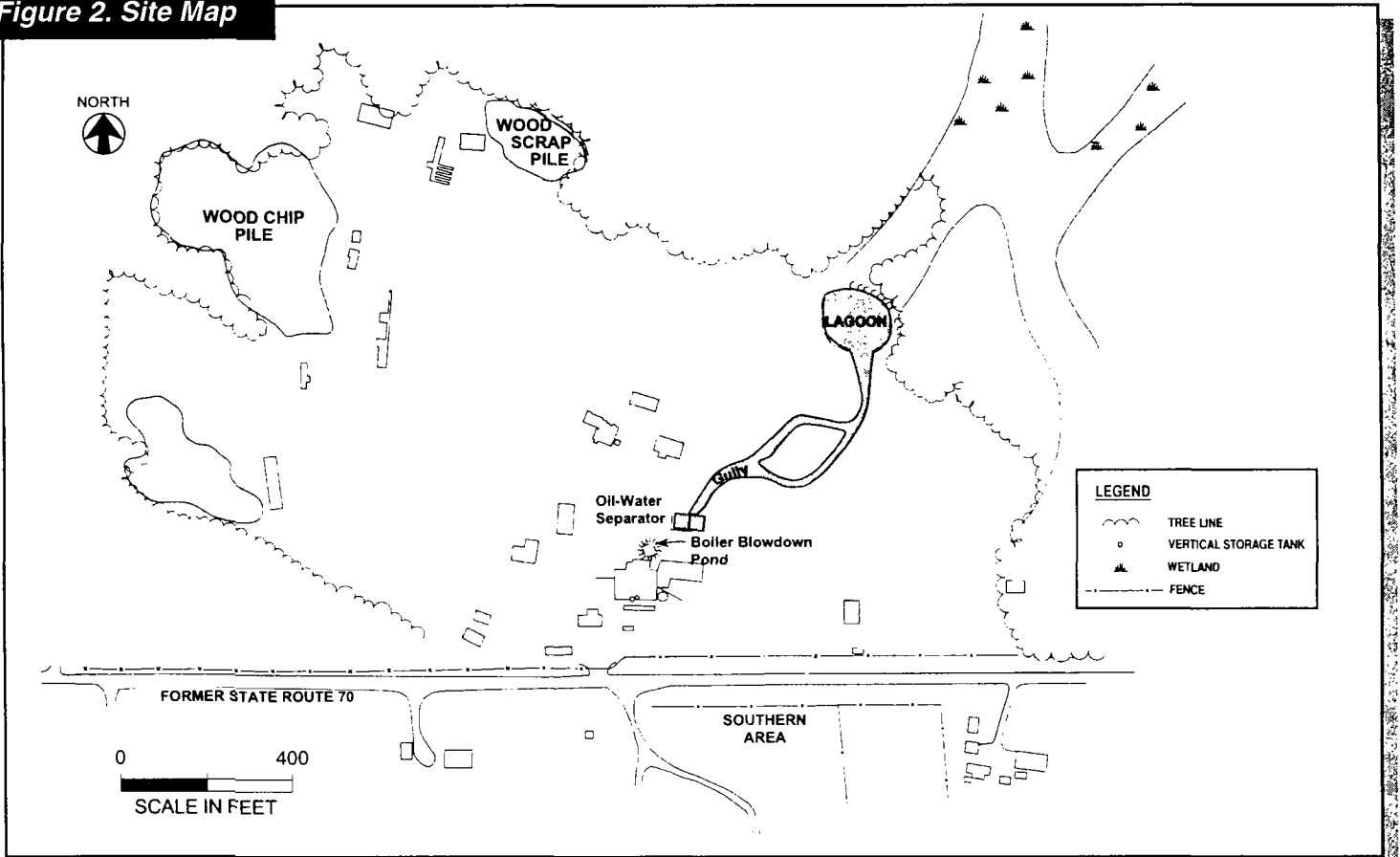
Human and Ecological Risks

U.S. EPA evaluated the potential health risks posed by contamination at the site. PCP and arsenic can cause cancer, and are responsible for most of the risk posed at the site. Arsenic can also lead to damage to human organs. The evaluation, called a Risk Assessment, concluded that the current level of contamination would present a significant health hazard to people who spend a lot of time at the site. Most of the risk would be from drinking ground water contaminated with PCP or touching contaminated soil. People who are exposed to high levels of PCP or arsenic may have an increased risk of cancer.

Summary of Cleanup Alternatives

Based on the RI/FS reports and previous investigations, U.S. EPA developed and evaluated five alternatives to ad-

Figure 2. Site Map



dress soil and ground-water contamination on the site.

Alternative 1 - No Further Action

Estimated Cost: \$0

Estimated Timeframe: N/A

The No-Further-Action Alternative is provided as a baseline for comparison to the other alternatives. Under this alternative, there would be no additional cleanup at the site to control the continued release of PCP and arsenic. Off-site movement of arsenic- and PCP-contaminated soil and ground water would continue. Without cleanup, there would be a risk from direct contact with the soil if the site were developed in the future for residential or industrial use.

Alternatives 2, 3, 4, and 5 contain the following common components:

- **Fencing** the soil cover area to restrict access to people and animals.
- **Institutional controls** would consist of land-use and water-use restrictions for areas below the soil cover.
- **Building demolition** consists of removing all buildings and equipment on site to facilitate soil consolidation, grading and revegetation activities.
- **Site erosion control measures** include building a foundation pad below the lagoon to help control erosion.
- **Highly contaminated arsenic soil solidification** involves mixing arsenic soil with concrete to immobilize the arsenic, and use it for the foundation pad.
- **Concrete pad removal** entails breaking the existing concrete pad into small chunks to use as backfill for the pad. The pad would be included under the soil cover area.
- **Environmental monitoring**, if necessary, would be done at least annually for five years and annually for an additional 25 years to assess the amount of PCP reduction and to determine whether the soil cover and erosion control measures are preventing the movement of arsenic and PCP.
- **Residential well carbon filter treatment** may be necessary to purify drinking-water wells located south of the site.

Alternative 2 - Soil Cover and Monitored Natural Attenuation of Consolidated Soil, Ground-water Collection and Treatment, and Monitored Natural Attenuation of Untreated Ground Water

(referred to as Alternative S2 combined with G3 in the FS)

Estimated Cost:

Capital ²	\$2.3 million
Operation and Maintenance (O&M) ³	\$2.9 million
Total Cost	\$5.2 million

Estimated Timeframe: 30 years

This alternative would prevent direct contact with contaminated soil by consolidating all soil and wood debris with PCP above levels that have been shown to harm people, and placing them on the gully/lagoon area. The consolidated material would be covered with 1 foot of clean soil then vegetated and fenced.

The floating PCP/oil mixture and the most highly PCP-contaminated ground water would be removed using five extraction wells. Pumping from these wells would create a ground-water depression to aid in collecting and containing the floating PCP/oil mixture. The PCP/oil layer would be separated and sent off site to a licensed hazardous waste incinerator. The water layer would be treated with a carbon filter to remove the dissolved PCP and organics, and discharged on site through wells, or infiltration trenches. The remaining PCP in the ground water would be allowed to break down naturally (natural attenuation), and the area of ground-water contamination would be monitored to track the plume conditions.

Alternative 3 - Soil Cover, Bioventing, Ground-water Collection and Treatment and Monitored Natural Attenuation of Untreated Ground Water

(referred to as Alternative S4 combined with G3 in the FS)

Estimated Cost:

Capital	\$3.8 million
O&M	\$4.4 million
Total Cost	\$8.2 million

Estimated Timeframe: 20 years

This alternative would prevent direct contact with soil as described in Alternative 2. The floating PCP/oil mixture and the most highly PCP-contaminated

ground water would be removed from the ground water using five extraction wells as in Alternative 2. The residual PCP/oil in the soil above the ground water, including the consolidated soil, would be exposed to injected air (biovented) to break down PCP/oil that would not otherwise be exposed to air. Bioventing is a process that speeds up the breakdown of PCP-contaminated soil. The oxygen in the air accelerates the growth of naturally occurring bacteria that break down the PCP/oil.

U.S. EPA would assess the effectiveness of the bioventing after five years and again after 10 years. Direct heating of the soil containing PCP/oil may be considered at a later date based on these evaluations. This heating would enhance the draining of the PCP/oil mixture to the extraction wells. Irrigation of the soil cover may be considered, when the organics floating on the water have been removed. This would increase the rate of breakdown of residual PCP in the soil.

Alternative 4 - Soil Cover, Bioventing and Ground-water Collection and Treatment Throughout Ground-water Plume

(referred to as Alternative S4 combined with G4 in the FS)

Estimated Cost:

Capital	\$4.3 million
O&M	\$4.6 million
Total Cost	\$8.9 million

Estimated Timeframe: 30 years

This alternative is the same as Alternative 3, with the exception that all of the PCP-contaminated ground water would be collected and treated. Fourteen ground-water extraction wells would be required instead of five. This alternative removes approximately 1½ pounds more PCP than Alternative 3.

Alternative 5 - Soil Cover, Bioventing and Steam Injection with Soil Vapor Extraction

(referred to as Alternative S4 combined with G5 in the FS)

Estimated Cost:

Capital	\$7.5 million
O&M	\$11 million
Total Cost	\$18.5 million

Estimated Timeframe: 30 years

The PCP residue in the soil immediately above the ground water would be

² Capital cost is the cost of construction.

³ O&M refers to the activities conducted at a site, during and following cleanup actions, to ensure that the cleanup methods are working properly.

Evaluating the Alternatives

U.S. EPA used nine criteria, which are required by law and described below, to evaluate the alternatives. The evaluation criteria are:

1. Overall protection of human health and the environment determines whether the alternative eliminates, reduces, or controls threats to public health and the environment through institutional controls, engineering measures, or treatment.

2. Compliance with Applicable or Relevant and Appropriate Requirements (ARARs) evaluates whether the alternative meets Federal and State environmental statutes, regulations and other requirements that pertain to the site.

3. Long-term Effectiveness and Permanence considers the ability of the alternative to protect human health and the environment over time and the reliability of such protection.

4. Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment evaluates the alternative's effectiveness in the reduction of the harmful effects of principal contaminants, their ability to move in the environment, and the reduction in the amount of contamination present.

5. Short-term Effectiveness considers the length of time needed to implement the alternative and the risks the alternative poses to workers, residents, and the environment during implementation.

6. Implementability considers the technical and administrative feasibility of implementing the alternative and the availability of goods and services.

7. Cost¹ considers the estimated capital, operation and maintenance costs evaluated in the form of present worth costs. Present worth is the total cost of the alternative over time expressed in terms of today's dollars.

8. State Acceptance considers whether the State agrees with U.S. EPA's analyses and recommendations of the studies and evaluations performed.

9. Community Acceptance will be addressed in the Record of Decision (ROD). The ROD will include a responsiveness summary, which presents public comments and U.S. EPA's responses to those comments. Acceptance of the recommended alternative will be evaluated after the public comment period.

¹ For Penta Wood, the present worth is an estimate of the funds that would have to be set aside (and invested at 7 percent) and paid out as necessary to complete the cleanup in 30 years.

Recommended Alternative

U.S. EPA recommends **Alternative 3 - Soil Cover, Bioventing and Ground-water Collection and Treatment** for cleaning up the Penta Wood Products site. The evaluation table (Figure 3) shows that Alternative 3 fully satisfies the evaluation criteria for the Penta Wood Products site. Alternative 3 would protect human health and the environment, provide long-term effectiveness, comply with state and federal environmental regulations, be implementable and cost effective.

removed using steam injection and soil vapor extraction (SVE). This works by using superheated steam injected into the soil containing the PCP/oil residue. The steam pushes and evaporates the PCP/oil mixture to collection wells that vent the mixture to an above-ground recovery system. The liquids and vapors are cooled and condensed. The insoluble PCP/oil mixture is separated, removed and sent to a licensed hazardous waste incinerator. The water is treated with a carbon filter to remove soluble PCP/oils. The treated water is then discharged on site through injection wells or by infiltration trenches.

Typical results at other sites using this technology indicates that only 90 percent of the PCP/oil mixture can be removed. Bioventing to remove the residual PCP in the soil may be required at a later date. Costs for this additional treatment are not reflected in Alternative 5. The PCP ground-water plume would be allowed to degrade naturally.

Next Step

U.S. EPA will consider public comments received during the public comment period before choosing a final cleanup plan for the site. All comments received during the public comment period will be addressed in a "Responsiveness Summary," which will be included in the final decision document called a Record of Decision (ROD). The ROD will be available for public review.

Figure 3. Evaluation Table

	Alternative 1 No Further Action	Alternative 2 Soil Cover and Monitored Natural Attenuation of Consolidated Soil, Ground-water Collection and Treatment, and Monitored Natural Attenuation of Untreated Ground Water	Alternative 3 Soil Cover, Bioventing, Ground-water Collection and Treatment and Monitored Natural Attenuation of Untreated Ground Water	Alternative 4 Soil Cover, Bioventing, Ground-water Collection and Treatment Throughout Groundwater Plume	Alternative 5 Soil Cover, Bioventing and Stream Injection with Soil Vapor Extraction
<div><div></div> = Fully Meets Criteria</div> <div><div></div> = Partially Meets Criteria</div> <div><div></div> = Does Not Meet Criteria</div>					
Overall protection of human health and the environment	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
Compliance with Applicable or Relevant and Appropriate Requirements (ARARs)	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
Long-term Effectiveness and Permanence	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
Reduction of Contaminant Toxicity, Mobility, or Volume through Treatment	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
Short-term Effectiveness	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
Implementability	<div></div>	<div></div>	<div></div>	<div></div>	<div></div>
Cost	\$0	\$5.2 million	\$8.2 million	\$8.9 million	\$18.5 million
State Acceptance	The Wisconsin Department of Natural Resources has reviewed the components of the recommended alternative and acceptance is withheld until after the public comment period.				
Community Acceptance	Community acceptance of the recommended alternative will be evaluated after the public comment period.				

For Additional Information

For further information about this Proposed Plan or the Penta Wood Products site, please contact:

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Anyone interested in learning more about the Proposed Plan for the Penta Wood Products site is encouraged to review the information repositories located at the **Burnett Community Library, 7451 West Main Street, Webster,** and the **Grantsburg Public Library, 416 South Pine Street, Grantsburg.** An Administrative Record, which contains detailed information upon which the selection of the cleanup plan will be based, is also located at the Burnett Community Library, and at the U.S. EPA Region 5 office in Chicago.



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U.S. Environmental Protection Agency
Region 5
Office of Public Affairs (P-19J)
77 West Jackson Blvd.
Chicago, Illinois 60604

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Comment Sheet _____

U.S. EPA is interested in your comments on the cleanup alternatives indicated in the Proposed Plan. U.S. EPA will consider public comments before selecting a final cleanup remedy for the Penta Wood Products site. Please use the space below to write your comments, then fold and mail this form. Comments must be postmarked by August 8, 1998. Comments may also be faxed to Susan Pastor at (312) 353-1155 or sent via E-mail to pastor.susan@epa.gov. If you have any questions, please contact Susan Pastor at (312) 353-1325 or at the toll free number: 1-800-621-8431.

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Susan Pastor
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